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CLAIMS:

1. A particulate matter conveyor including:
a supply means for supplying paper particles to a
5 supply end of a transition duct, the particles being
conveyed through a main passage in the duct and expelled
through a discharge outlet at a dispense end of the duct;
at least two contra-rotating helical conveying
screws driven by a screw driving means and mounted in the
10 transition duct, the screws being cantilevered at one end
to the supply end and are unsupported at the dispense end
of the duct;

wherein a substantially constant clearance
between one or more helical blades on the screws and the
15 main passage allows for an even and uninterrupted flow of
the particulate through the transition duct.

2. A particulate matter conveyor as claimed in Claim
1, wherein there is also a constant clearance between the
20 blades themselves, namely by positioning the blades of the
screws 180° out of phase to one another.

3. A particulate matter conveyor as claimed in Claim
1 or 2, wherein the clearance between the inside of the
25 transition duct and the blades of the screws is between
50-100mm.

4. A particulate matter conveyor as claimed in any
one of the preceding claims, wherein the supply means
30 feeds particulate through an inlet opening in the
transition duct located above the screws and adjacent the
main passage.

5. A particulate matter conveyor as claimed in any
35 one of the preceding claims, wherein the screws each have

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a stepped shaft wherein the step in the shaft is directly below the inlet opening, the smaller diameter maintained through the main passage to the discharge outlet.

- 5 6. A particulate matter conveyor as claimed in Claim 5, wherein the shaft step is located at a point vertically below the periphery of the inlet that is adjacent the supply end of the transition duct.
- 10 7. A particulate matter conveyor as claimed in Claim 6, wherein the shaft step is vertically below the periphery and slightly back from a direct line below the periphery and the inside of the inlet opening.
- 15 8. A particulate matter conveyor as claimed in Claim 6 or 7, wherein the shaft step is approximately 50mm back from a direct line below the periphery and the inside of the inlet opening.
- 20 9. A particulate matter conveyor as claimed in any one of the preceding claims, wherein a restriction is provided vertically below the periphery of the supply means that restricts the clearance between the supply end and the main passage.
- 25 10. A particulate matter conveyor as claimed in any one of the preceding claims, wherein an airflow at the dispense end of the transition duct is provided to create a vacuum effect to assist the particle flow through the conveyor and to create a negative pressure gradient
- 30 11. A particulate matter conveyor as claimed in any one of the preceding claims, wherein two helical blades are provided on each of the helical screws.
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12. A particulate matter conveyor, substantially as
hereinbefore described with reference to the accompanying
drawings.

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By their Patent Attorneys

10 GRIFFITH HACK

Fellows Institute of Patent and
Trade Mark Attorneys of Australia